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ABSTRACT

The proceedings include an appeal to teachers of the deaf by David Denton and a discussion of communication, psycholinguistics, and deafness by Donald Moores. Also, McCay Vernon considers mental health, deafness, and communication; and Hilda Williams describes Project LIFE's role in developing programed language lessons. Frederick Schreiber presents a deaf man's view of psycholinguistics and deafness, and Mrs. Lee Katz relates the experiences of the parents of a deaf child. (JD)

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PROCEEDINGS

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Teacher Institute

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Teacher Institute

The Teacher Institutes developed when the Maryland School for the Deaf, the Kendall School, the West Virginia School for the Deaf, and the Virginia School for the Deaf felt the need for staff members to meet, to exchange ideas, to discuss current problems and trends, and to attempt the solution of some common problems. The Institutes have become annual affairs and meetings are generally held at the same time as the State Teachers' Conventions in the fall.

In the fall of 1969, the Institute was sponsored by the Maryland School for the Deaf. Representatives of schools and agencies in nearby states and two foreign countries participated, in addition to staffs of the original four schools.

The Proceedings of the Teacher Institute at the Maryland School for the Deaf is made available jointly by the Council of Organizations Serving the Deaf and the Maryland School for the Deaf.

To the Profession . . .

David M. Denton,
Superintendent of the Maryland School for the Deaf

With each additional communication deprived deaf child who comes to us for evaluation and possible enrollment, there comes also an overpowering awareness that this child has been cheated. With each encounter with disillusioned and embittered parents who discover, much too late, that they have been denied the opportunity of sharing meaningfully in the growth and development of their child, there is a compulsion to speak out for the child, his parents, and for efforts to alter the causes of the problem.

It has long been recognized, clinically, by many educators and administrators that there has been a need for the use of a combined or total communication system for deaf children.* Because of the obviousness of this need for a total communication system many schools have provided such, even though it was done, in part, in a clandestine manner. Reluctance to develop and promote a system of free communication in the schools has been based primarily upon a fear of parental and public disfavor. Unfortunately, in many cases, the use of total communication was permitted only as a last resort, after the child had experienced repeated failure under an oral only system which denied him adequate opportunity to communicate with full meaning and understanding.

The time has passed when educators of deaf children need depend solely upon clinical judgment or experience in order to evaluate the merit of total or combined communication. The pioneering programs and extensive research of educators such as Marshall Hester (1963), E. Ross Stuckless and J. W. Birch (1966), Sociologist Kay Meadow (1967, 1968), Psycholinguist Eric Lenneberg (1967 ab), Speech Pathologists Boris Morkovin (1968) and Stephen P. Quigley (1961, 1969), Psychologists Hans Furth (1966), George Montgomery (1966) and McCay Vernon (1969), and Psychiatrists Eugene Mindel (1968, 1969), Hilde Schlesinger (1967), Robert Sharoff (1959) and Roy R. Grinker, Sr. (1969), give solid documentary and theoretical support to the early and continued use of manual and oral communication. Language development is more rapid, mental health is better, and speechreading and speech are, in general, as good or better. (Vernon, 1969).

This editorial is an appeal to the conscience and conviction of the profession to support openly and hopefully what has been demonstrated to be of substantial benefit to deaf children. It is now imperative that educators provide those tools necessary for expanded academic learning and improved psycho-social development. No longer can we, with integrity, deny deaf children the full communication required for educational growth and psychosocial development.

The courage of men like Marshall Hester, the continued efforts of the National Association of the Deaf and the increasing intellectual openness of the profession to total communication, must be reflected in the courage and conviction of leading educators and administrators . . . courage measured by the willingness of these leaders to demonstrate these qualities in their own programs and to publicly state their position. For too long, we have allowed the few with the courage to speak out to carry the heavy and hazardous burden for the silent majority. Deaf persons have, in many cases, seen their interests and their cause abandoned through the apathy and fear of those in education upon whom they have depended most.

We who hold the fate of deaf children in our hands must decide if our profes-

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***By total communication we mean the right of a deaf child to learn to use *all* forms of communication available to develop language competence. This includes the full spectrum, child devised gestures, speech, formal signs, finger spelling, speechreading, reading and writing. To every deaf child should also be provided the opportunity to learn to use any remnant of residual hearing he may have by employing the best possible electronic equipment for amplifying sound.**

sional lives are to be committed to these children or to our own selfish interests.

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(Reprint request to David M. Denton, Superintendent, Maryland School for the Deaf, Frederick, Maryland)

Communication, Psycholinguistics and Deafness

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My first reaction to being asked to deal with a topic so broad and ill-defined as communication, or even its stepchild psycholinguistics, is best described as one of panic. I imagine I feel somewhat like the astronomer who found that his assigned lecture was to be on "the universe and other things." The most common mistake made by experts in communication, or by people who tend to talk about and around the subject, is that for the most part they never define the term and therefore, lacking a common ground of agreement, frequently fail to communicate their most basic points. Therefore, whether you agree with it or not, the first task I have set for myself is to make you aware of my frame of reference. To me communication is one of the most important, if not most important, aspects of behavior—both human and non-human. Communication, broadly defined, involves any interaction between living organisms and can be observed up and down the phylogenetic scale from the amoeba to the most complex forms of primate life. Mating, fighting, and the specialized signaling systems of organisms such as birds, bees, and fire ants are all covered under this general category. Not only can the same species communicate with each other but there is abundant evidence of interspecies communication. Man communicates with dogs ,with chimpanzees and with a variety of wild and domestic animals. It can even be said that plants and animals can communicate. For example, certain plants project an unmistakable, even if false, message to bees.

For human beings, the most important sub-category in communication must be language. Language is something that is uniquely human which transcends the animal limitation to the here and now or to some instinctive innate patterns of behavior. Language is dependent on learning and it is modifiable by experience. One of the most noticeable aspects of human language is this very fact that it must be learned. It is not passed on from parent to child through germ plasm; it does not develop naturally. A child of German ancestry does not automatically develop proficiency in German and a child of Spanish ancestry does not automatically develop proficiency in Spanish. The essence of language is its arbitrary nature. To put it simply, there is nothing horsey about the word horse. The same concept can be expressed by the German word *pferd* or Spanish *caballo*. The secret of language is that it is novel yet appropriate; given the knowledge of a limited number of meaningful units in the language, a competent speaker can combine and recombine these units to an almost infinite degree so that he can produce and understand normal utterances which are appropriate to the situation in which he might find himself.

If for human beings the most important aspect of communication is language, then the most important category of language for most people must be speech. The vast majority of children with intact auditory systems learn their language through an oral medium. Their language is developed through the first five or six years of life by means of speech input and production. For them, other potential aspects of language such as reading or writing, or even fingerspelling, the language of signs, or Morse Code are secondary and are learned on the basis of the primary system, speech. There are two basic realities of which we, as educators of the deaf, must remain consistently aware. First, speech is the most common early mode of communication in our society. However, it is not necessarily the only mode of communication in our society.

Given such a frame of reference, it might be beneficial to take a look at the

present state of the field of education of the deaf. It can be argued that Western man, regardless of the circumstances in which he finds himself, tends to perceive his world in much the same way; he equates the past with failure, the present with change, and the future with success. Basically, this encapsulates my Weltanschuing or world view. Whether these perceptions reflect my native optimism or are reflections of the world of reality remains to be seen. Obviously, we are at a stage of agonizing self reappraisal. Most of us have read the Babbidge report which so devastatingly and graphically outlined the inadequacies and insufficiencies of our programs throughout the country. We all have read or heard of report after report which so depressingly and consistently point to one inescapable conclusion—typically the children who leave our programs are limited to a fourth grade reading level. We know that thousands of our children after years and years of intensive training in articulation are unable orally to make even their most basic needs known. We know that children who are expected to rely on it to the greatest degree, children with the most profound hearing losses, are unable to speechread as well as hard of hearing children. We know that children pour out of our programs in an endless stream unable to write even the most simple grammatical English sentence.

Given this devastation, this irrefutable evidence, we are being forced to move past that comfortable period in which we were able to deal mainly in cliches. The trite sayings and slogans of the recent past not only are now unacceptable, but they stand as a mockery of our results. The panaceas of the past have been tried and found wanting. We cannot sit back and wait for medicine to eliminate deafness in our society and we have no reason to anticipate the magical development of any hearing aid that will bring clear speech signals to the most profoundly deaf child. Recent arguments that once we had established preschool programs our problems would be solved are now muted. The extension of traditional methods which have failed with six year olds down to the two and three year level have been doomed to failure, as the results have demonstrated. Basically, we must be doing something wrong. There must be some aspect, or aspects, of communication, of language, and of speech—some essential component—that educators of the deaf have failed to grasp.

For years, even decades, it has been argued by some psychologists and linguists that the roots of speech and of language are separate. The work of Piaget in Switzerland and Vygotsky in Russia gave great impetus to the idea many years ago in Europe. If we accept such a tenet, then we must admit that it is possible to develop speech without language, and also that it is possible to develop language without speech. I submit that both of these sins have been widely commited in educational systems for the deaf in the United States. We all know of programs that have concentrated almost exclusively on the development of articulation skills at the expense of linguistic competency. And we also know of programs—despite official disclaimers—in which administrators and teachers are all too eager to give up on the development of speech skills and rely almost completely on manual communication with children who have potentially adequate residual hearing, speech, and speech reading abilities to enable them to function in a predominantly oral environment.

Fifteen years ago perhaps people could have been excused for equating speech with language, or thinking that speech encompassed all aspects of language. Others perhaps could have been excused for thinking that we had to choose between speech and language. I believe that we have not been sufficiently aware of how deeply these two basic misconceptions have colored our thinking. As an example, consider the reasoning behind the two most extreme poles in education of the deaf. The argument for one extreme goes something like this. "It is a hearing world. Our children must learn to live in a hearing world. Hearing people speak. Our children must learn to speak. Manual communication inhibits the development of speech. Manual communication cannot be allowed." By the same token

consider the other extreme. "It is very difficult to teach speech to profoundly deaf people. If I have to choose between speech and language, I will choose language. Too much time is wasted on speech training at the expense of language skills. Therefore we will concentrate on the development of langauge through manual communication and ignore the development of speech which deaf children never master anyway."

Now, when parents are presented with such arguments and are asked to make the agonizing choice between speech and langauge, it is obvious that because most of them want their children to be normal, i.e. hearing, they will opt for speech. Perhaps most educators and psychologists, faced with the same decision, would cast their preference for language. But the fact remains, and it is a fact, that this agonizing choice is, in actuality a false one. More and more people are beginning to realize that there is no need to choose between speech and language, that both can be developed to far higher levels in deaf children than has been the case in the past. Therefore any program that continues to concentrate on speech, at the expense of language and communication, or that equates speech with all language is inevitably doomed to failure. Also, any program that fails to understand and take into account that speech is the most common means of communication and gives up at age five or eight or twelve or fifteen will also severely limit the scope of functioning of its graduates for all time. We cannot shrug our shoulders, sadly smile and state that lipreading is an art or that speaking is an art that not all can master. It is our responsibility to advance the state of the art. The vocal apparatus of the deaf child is intact. If a child does not learn to speak or to speechread, we can assume then it is not because he does not have the ability but rather that we have not yet learned how to teach him to do so. We must make a firm distinction between the auxiliary verbs *can* and *do*. If someone were to ask me if children coming out of the programs of today *do* exhibit adequate skills in speech and speechreading and in reading and writing, my answer would be definitely not. However if the question were to be changed to ask if children with profound hearing losses *can* develop adequate skills in speech and speechreading and in reading and writing, my answer would be definitely yes.

For this reason, it excites me to see programs such as this one in Maryland breaking new ground and conducting honest searches for better ways to educate our hearing impaired population. I must applaud you for your courageous stand. Implicit in a rejection of simple answers lies the difficult task of accepting the reality that we live in a complex world. In a way we have opened a Pandora's box. Once we move past black-white, either-or dichotomies, it is almost as if we find ourselves on the edge of an abyss. Nature is too complex, too overwhelming. There is just too much to absorb and conceptually we can't handle it. We must step back. To make sense of our world, to bring order to reality, we must have a frame of reference, and willingly or not, we must come to terms with this complexity before we are submerged in it. Therefore we more or less arbitrarily categorize our experiences and by this categorization order the environment with which we deal. This is justifiable so long as we operate with the understanding that categorization leads to simplification as well as order, and simplification involves distortion. Therefore the nature of our frame of reference dictates what we look at as well as how we look at it. To a degree greater than we would probably care to admit, much of what we say and do in relation to language is dictated by our previous training, and our habits, built up over the years, are hard to alter or break. The noted linguist, Noam Chomsky, has stated that perhaps one thing the mind of man is incapable of ever comprehending is the mind of man.

In the field of language development and usage the situation is probably analogous to that of the seven blind men and the elephant. Each investigator concentrates on one aspect of the beast and tends to delude himself that he is coming to grips, if not with the system as a whole, with at least the

really important aspects of the system. Using this as a reference point I would like to present briefly the way which I, whose background is chiefly in education of the deaf and in psychology, perceive and approach language. I will then discuss what appears to me to be those aspects of psycholinguistic development most relevant to education of the deaf.

For me, psycholinguistics rightfully entails all aspects of the study of language development and usage. It is concerned with speech, grammar, and semantics and necessarily touches on and overlaps areas such as psychoacoustics, communciation theory, descriptive linguistics, transformational grammar, articulatory phonetics, and behavioristic and neo-behavioristic psychology. As such the compleat psycholinguist does not exist; no one could ever be proficient in all of these areas. Instead, there are individuals whose interests lead them to work under this broad umbrella.

The term Psycholinguistics, the psychological study of language, is itself a hybrid. One part of its root, *Psyche*, comes from the Greek, and the other, *Langu*, from the Latin. The distinction is quite apropos in that it represents an attempt to provide a common meeting ground between the two quite disparate disciplines of Psychology and Linguistics. In the United States psychologists have concentrated for the most part on prediction and control of behavior with specific emphasis on the role of reinforcement. The same rules that govern all behavior are seen as applying equally well to verbal learning. The field of linguistics traditionally has been more concerned with grammar without respect to control or to meaning. Language has been seen as uniquely human and transcending other kinds of behavior. The role of reinforcement has been minimized. Thus, some professors teach courses in "Psycholinguistics" in which the words "Learning Theory" or "Reinforcement" are never used; for other professors these terms form the very basis of the course.

The differences in viewpoint reflect a much broader social issue which has existed for centuries. In one we find a tendency to look at the human mind as almost completely plastic and flexible. This position is exemplified by the claim of John Watson, a father of American behavioristic psychology, that, given a normal, healthy child at random, he could train it to become any type of specialist he might select—doctor, lawyer, artist, merchant-chief, beggar man, or thief—regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors. On the other hand are those who attach much more importance to biological factors. In the field of language acquisition we find more and more interest being devoted to innate factors, to the idea that the tendency to develop language is programmed within each child. This position may be summed up by the argument that the tendency of the human child to develop language might be as deeply ground in his constitution as the tendency to use his hands. Thus, language is perceived as not really being learned, per se, instead the environment merely triggers a process which has been anticipated by millions of years of evolutionary development.

The main disagreement, of course, is not between a pure environmental versus a pure biological rationale. The question centers on the relative importance of environment versus biology. Recently, in the United States, at least so far as language development is concerned, there has been a swing towards the biological end of the continuum, a swing with which I am in complete harmony. However, as educators of the deaf, it provides us little comfort to be told that all children develop language proficiency given even a minimal kind of environment. For the most part, we are dealing with children who do *not* develop language proficiency in English after years of intensive training. It is up to us to continue to search for the necessary and sufficient factors in the development of language and perhaps gain some insight into this perplexing simplicity—complexity paradox. In one way language must be simple, it must have regularity because it is learned without any apparant effort by almost all children, given some minimal environmental stimulation. At the same

time it is also overwhelmingly complex in that we have never adequately defined it, described it, or taught it. For me, the potentially most rewarding area of study must be that period between 18 months, when a child first begins to put two words together, and five years of age when he can be said to be linguistically proficient.

The first thing that we must be aware of when we talk about language is that it exists simultaneously on a number of different levels. The most simple breakdown would probably be in the categories of 1) speech, 2) grammar, and 3) vocabulary. The forty-three or forty-four basic sound units, or phonemes, of English are learned quite rapidly. By six years of age, with few exceptions, all of these sounds have been learned by the normally hearing child. It has been argued by some linguists that by the age of four a child has mastered all of the sounds of his language. Even those sounds which he cannot pronounce he is able to understand. The development of grammar, which I consider to be the most important element of language, follows a somewhat different pattern. Grammar involves two elements, syntax or word order, and morphology, the changing of words to show tense, numbers etc. In the case of grammar the important thing to remember is that what a child produces is not necessarily what he hears. The child is not a passive agent, but an active organism interacting with his environment following a list of rules which he has produced himself. At first these involve very general rules of word order and word endings which rapidly become more and more precise and take into account adult usage. Thus when a child says *goes, hitted,* or *runned,* he is exhibiting a general knowledge of rules of his language. A good example of this would be provided by the utterances of one child I have followed over a period of years. At approximately three and one-half years of age this boy used the form *taked,* at four years of age he had changed to *tooked,* and by the age of five had altered this to *tooken.* It is safe to assume that none of the adults in his environment used any of these three forms. Rather, at each stage the child was demonstrating a more sophisticated knowledge of the rules of English grammar.

TABLE 1

Past Tense Verbs Produced By Kirk At Two Years And Eight Months

Total Sample — 74 Verbs

	REGULAR	IRREGULAR WITH - ED	IRREGULAR
	POWED	MAKED (2)	MADE
	SPLASHED	CATCHED (2)	CAUGHT (2)
	LOCKED (4)	BROKED	BROKE (2)
	TURNED	FALLED	FELL
	CLEANED	FELLED	WENT (7)
	WALKED	RUNNED (8)	THOUGHT (2)
	DIED (2)	TAKED (6)	SAID
	BANGED	BUYED (3)	FOUND
	WATCHED	SINKED (3)	GOT
	DROPPED	DRINKED (3)	ATE
	LANDED	SWAMMED	BRANG
	JUMPED (2)	THREWED	
	SAILED	THROWED	
	HAPPENED	SINGED	
		TEARED	
Total	19	35	20

Perhaps a look at some of the language structures produced by two brothers, one two years and eight months and the other three years and 10 months, in the course of a play period, might reinforce this point. Vanstrum, at the University of Minnesota, first analyzed the past tense verbs produced by Kirk, the two year old during the course of his conversations with his older brother Erik. Table 1 indicates that of the 74 past tense verbs produced by Kirk, 54 were made by using the -ed ending. Of these, 19 were used "correctly" with regular verbs. For approximately ½ of the cases, 35 times out of 74, Kirk "incorrectly" formed the past tense by adding the -ed ending to an irregular verb. He said such things as *maked, catched, broked, falled, felled* etc. In the remaining 20 cases Kirk applied an irregular ending to the verb, usually "correctly" but once "incorrectly." He produced such forms as *made, sent, thought* and *brang.* It is interesting to noted that for some words Kirk was using both regular and irregular endings. He said both *maked* and *made, catched* and *caught, broked* and *broke.* He even formed the past tense of the verb *to fall* in three different ways, saying at various times *falled, felled,* and *fell.* The evidence strongly suggests that Kirk really is acting on his language and does not react completely on the basis of immitation.

TABLE 2

Erik's Interrogative System At Three Years And Ten Months

TYPE OF INTERROGATIVE	EXAMPLES
1. SIMPLE INTONATION	GREAT BIG ONE? AND YOU WERE ON T.V.?
2. SIMPLE INVERSION	DID YOU MOVE? CAN WE JUMP IN THERE?
3. "WHO-WHAT" QUESTION	WHO CAUGHT ME? WHAT'S THAT?
4. WHERE QUESTION	WHERE'S MY BROTHER? WHERE'S ANOTHER STANDING UP FOOT?
5. AUXILIARY VERB MISSING	WHAT YOU START WITH? WHAT THOSE INDIANS DO?
6. WH QUESTION WITHOUT INVERSION	WHY I DON'T HAVE A ROCKET SOCKET TO THE MOON? WHAT YOU CAN SEE OUT THERE?

Erik's language sample was analyzed to determine how far advanced he was in the development of his interrogative system. In the English language the development of different structures for asking questions theoretically should occur in relatively well defined sequences. The most primitive and therefore easiest to learn, would involve simple intonation, that is, raising of the voice at the end of a statement. Complex question forms involve the addition of words and the change of word orders which entail sophisticated transformations of a basic sentence sequence. A look at Table 2 shows Erik at age three years and ten months has advanced along this scale to achieve proficiency in his use of interrogatives. He has mastery over simple innotation and employs simple inversion by moving the auxilary verb to the beginning of the sentence. In his corpus he made no mistakes in his use of *who, what,* and *where* questions when these forms occurred as the subject of a sentence. Erik first ran into difficulty, in relation to adult English, in those utterances which entailed

using an interrogative word in the position prior to a subject of a sentence. Sometimes he omitted the auxiliary verb that normally would be placed between the question form and the subject, as in *What you start with?*, and *What those Indians do?* For his most complex structures he used the Wh question without inversion, that is, he produced strings such as *Why I don't have a rocket socket to the moon?* or *Why they're punching?* In this situation, all of the necessary transformations have been performed, with the exception of the final transformation.

Stop if you will and consider that these examples were produced naturally by a child who was not yet four years of age. Think of the fantastically complex linguistic problems that he has solved to reach this level of proficiency. Remember also that he has done it without any apparent effort and without any conscious program on his parents' part to teach him language. Although Erik might be somewhat advanced at his age, his situation is not unique. I, in common with many other people, have come to be awed by childrens' ability to formulate their own systematic rules of grammar. The noted linguist, Noam Chomsky, has commented that perhaps it is impossible to teach language, that the best we can do is merely hope to set the environment for children to learn it. Comparing Erik's interrogative system with that of deaf children with many years of training in our programs makes one pause. Perhaps, instead of asking how can we teach language, we should be asking how we can set the environment so our children can learn it by enabling them to utilize their own unique abilities and predispositions toward language acquisition.

Another, little-appreciated, fact lies in a young child's mastery of the function words of his language. Function words are those very small "non-meaningful" words which set the structure of sentences. They include prepositions, conjuctions, and articles. Although there are only approximately 150 function words in common use in the English language, they comprise about one-third of the total speaking corpus in day to day living. They are repeated over and over again. The article *the*, for example, is used from eight to ten percent of the time.

Vocabulary has a different pattern of development than both speech and grammar. Although the books may be closed on the latter two to a great extent before a child even enters school, we constantly add new words to our vocabulary. However, to argue whether a person has a vocabulary of 5,000, 10,000, 50,000 or 100,000 words is to obscure the issue. The main concern is the individual's ability to combine and recombine the meaningful elements of his language. For example if I were to introduce a new word, *glink*, you would first know what part of speech it was by the way I used it in a sentence. Once having a definition you could use it in any way you see fit: as a noun, verb, adjective, or adverb. You could manipulate this word according to your own needs. Depending on what the situation called for, you might add any one of the following prefixes in Table 3 to produce *Reglink, Unglink, Disglink,* etc. You could also use any of the suffixes to produce other word forms just as easily. The addition of one element, *glink*, to your vocabulary has in reality enriched your expressive language one hundred fold; sixty-four possible combinations are presented in Table 3 alone. It is this ability which underlies linguistic competency, the ability to produce and to understand novel yet appropriate utterances, given a knowledge of the rules of the language. Compare this to the restriction of communication of a deaf person who produced the following string, *Me got vertigo.* Emphasis on dictionary skills at the expense of grammatical development have caused this type of illiteracy in many programs for the deaf.

TABLE 3

Potential Meaningful Combinational Units Available to Newly Learned Word

Prefix	New Word	Suffix
RE	GLINK	S
UN		ED
MIS		Y
UNRE		ILY
PRE		ABLE
POST		ISH
DIS		MENT

For language to develop adequately, a mutually intelligible communication system between the child and at least one significant person in his environment must be established. I will talk here about mother-child interaction, although I am aware a child can learn language from other children just as easily. There must both be meaningful input to the child and meaningful feedback and modification of the utterances which the child himself produces. Without input the child has no standard to imitate or to which he can react. Without feedback the child has no way of knowing which of his utterances are acceptable in terms of the adult standard. Consideration of these response dependent systems leads us directly into the question of methodology. If we are to restrict our discussion to children with severe losses, we must admit that traditional means used with young deaf children are inadequate for our task in that they inhibit communication between parent and child. Still, we must ask ourselves if we have anything better to take its place. Perhaps a look at some related work with deaf children can help us make a tentative decision.

All children have an urge to communicate, and deaf children, if no other means are available to them, will resort to their own ingroup gesture systems. These systems, which may be unintelligible even to other deaf children of different ages in the same school, are marvelous vehicles of communication for children within the same group and have been observed in a variety of settings in the United States and in Europe. To extinguish this behavior in the majority of deaf children, one would either have to punish children severely for gesturing or remove them from all contact with other deaf children. The former might not be effective because children when alone would probably still resort to gesture communication in private. The second alternative would also be ineffective if we can generalize from the results of a recent study by Collins indicating that perhaps the most common mode of communication initiated by deaf preschool children to their parents is that of gesture. Perhaps it would be more beneficial to try to build on what the child produces, to use his gestures as a stepping stone to language. We should be able to respond to the child's expressions in such a way as to help him move from his limited ingroup system to that outgroup system which we label English.

To some extent, this is already part of an ongoing process that is taking place in many schools for the deaf across the United States. Tervoort's recently reported study of deaf children in Belgium, the Netherlands, and the United States is a case in point. Tervoort investigated the private communication systems of deaf children ranging from ages seven to seventeen in these countries. The results have shocked many people. First, he found no consistent relationship between speech and language. There was no way of predicting one from the other. Of even more interest to me are his conclusions regarding the relative language abilities of the children in the United States and Europe. On both continents, the older the children became the more they tended to rely on manual communication. Signs predominated throughout from ages seven to seventeen and for the older children fingerspelling was the second most common mode of communication. However ,the Americans as they grew older tended to sign and fingerspell in more and more nearly correct English while the children in Belgium and the Netherlands did not come to approximate the structure of the adult language of their culture, Dutch. The children from the Dutch speaking environments continued even up to the age of seventeen to rely on their ingroup gesture systems to a much greater degree. Tervoort attributes the superiority of the American students, in part, to the influence of adult American sign language which freed the children from reliance upon gestural communication and helped move them into a more adequate, arbitrary sytem that could follow the word order of English.

If exposure to such a system produces noticeable results in terms of syntactical development in programs which do not allow manual communication in the classroom before the age of twelve, then we can assume that systematic introduction of this mode of communication

should produce even better results when used with very young children. This must remain for the present merely conjecture because no programs in the recent past have been allowed to use manual comunication with deaf children on the basis that introduction of manual means of communication would inhibit the child's speech and language development. We do have in our population, fortunately, a subpopulation that has been exposed as a matter of course to manual communication from birth. I am referring to those deaf children of deaf parents who rely chiefly on the language of signs. Comparisons of children who are genetically deaf with children who are deaf from other causes is always fraught with difficulty, and interpretation of results must be tentative. First, a child who is genetically deaf has less chance of suffering from other handicapping conditions than one whose deafness is associated with maternal rubella or the Rh factor. Also, a child with deaf parents may grow up in a more favorable home climate if his parents are more accepting of his deafness. On the other hand, it is evident that deaf adults tend to be lower on the economic scale, to have less well developed linguistic skills, and to be somewhat more prone to neuroses. All of these factors should inhibit to some extent the psychological and linguistic development of deaf children of deaf parents. Furthermore, since the International Congress of Milan in 1880, the majority of educators of the deaf have operated under the assumption that the use of manual communication retards development both in speech and language. If this is true, we would expect deaf children of deaf parents to function at the lower end of the scale in our programs.

We can look at what little evidence is available to see if this is indeed true. Stevenson compared the educational achievement of 134 deaf students with deaf parents to a matched group of deaf children with hearing parents, all of whom had attended the California School for the Deaf at Berkeley between the years 1914 and 1961. He reported that 90%, or 120, of the students with deaf parents attained a higher educational level than children of hearing parents with whom they were matched. Of the children with deaf parents, 38% went to college as compared to only 9% of the children with hearing parents.

Stuckless and Birch compared 37 deaf students with deaf parents to 37 deaf students with hearing parents from five different schools for the deaf. No differences were found between the two groups in speech and in psycho-social adjustment. Children with early manual communication, that is, those with deaf parents, were found to be superior in reading, in speechreading, and in written language.

Meadow, also using a matched pair design, studying students at the California School for the Deaf at Berkeley, reported that children with deaf parents read on the average 2.10 years above children with hearing parents and in arithmetic they were 1.25 years superior. In communicative functioning, children with deaf parents were rated higher in facility in written language, ability to fingerspell, ability to read others' fingerspelling, ability to use the language of signs, lack of frustration because of inability to communicate, and willingness to attempt communication with strangers. No differences were found in speechreading ability or in speech aptitude and performance. Meadow stated that her findings agreed substantially with those of Montgomery who studied 59 prelinguistically deaf Scottish students and reported that positive significant correlations were recorded between manual communication ratings and the Donaldson Lipreading Test. Montgomery concluded, and Meadow concurred, that there appears to be no statistical support for the currently popular opinion that manual communication is harmful to or incompatible with the development of speech and lipreading.

The findings are quite consistent with the work of Tervoort that has been mentioned previously. Meadow reported that children with deaf parents were rated to be more mature, responsible, independent, enjoy new experiences, more friendly, sociable, popular with classmates, popular with adults, able to respond to situations with appropriate emotion, and able to show appropriate sex-role behavior. An interesting sidelight afforded by Meadow is the fact that only about 40% of the children with deaf parents had attended preschool

programs compared to 80% of those with hearing parents. Those children with deaf parents were superior in all aspects of functioning; academic, social, and communicative, with the exception of speechreading and speech in which there were no differences between the groups. It is interesting to speculate about what might have been the achievement of children with hearing parents if, in addition to all other advantages, they had also enjoyed the benefits of early communication with their parents.

Only one study using experimental and control groups has been conducted comparing the use of oral-manual communication to traditional oral means in the classroom with very young children. Quigley matched 16 children taught by the Rochester method (speech plus fingerspelling) to 16 students taught by the oral method. At the end of four years, when the children were on the average 7.8 years of age, their achievement was assessed in four areas: 1) fingerspelling, 2) speechreading, 3) reading, and 4) written language. The experimental subjects, those receiving fingerspelling plus speech, were significantly superior, as might be expected, in fingerspelling. In speechreading they were superior on the Craig sentence test and no differences were found on the Craig word test. In reading they were found to be superior on five of seven subtests taken from the Gates, the Metropolitan, and the Stanford achievement tests. No differences were found on the other two reading tests. In written language they were rated superior on three of five measures, there was no difference on one measure and the group receiving straight oral instruction earned a higher Grammatical Correctness Ratio. Quigley noted that, in addition to having a lower total number of words written, the fewer, shorter, and less complex sentences produced by the control subjects reduced their possibilities for grammatical error and that probably was the reason for their higher scores on the Grammatical Correctness Ratio. The results are similar to those reported in the Soviet Union which years ago abandoned the traditional oral approach in favor of "Neo-oral" education, that is fingerspelling plus speech. The Russians have reported outstanding success with this method with very young children and they claim that the linguistic abilities of the deaf children now going through programs are far superior to those educated in the Soviet Union in the past.

It seems to me that our approach to the development of language abilities in deaf children should consist of a two pronged attack. The first, utilization of the natural inclination of deaf children to gesture as a jumping off point for the introduction of language concepts, already has been discussed in some detail. This implies a learning of language in a more or less natural, unstructured situation. However, for the deaf child, a certain amount of structured, direct teaching is necessary to develop and enhance the skills necessary for the acquisition and retention of language ability. In a paper presented at the International Conference on Oral Education of the Deaf in 1967, Lenneberg strongly emphasized that the most important aspect of language instruction is in some way or other to get enough examples of English sentences to the child. We must teach language and not be side-tracked or misled into thinking that our goal is to develop skills subsidary to language such as lipreading, articulation, and signing. These can only be outward manifestations of inward competencies. Lenneberg argued that the early introduction of graphics in addition to the usual emphasis on oral language could be quite beneficial to language development. It is Lenneberg's position that graphics, (reading and writing) would present no menace to oralism but rather would facilitate it. His words are strongly reminiscent of the statement by Alexander Graham Bell that reading would be the salvation of the deaf.

I would advocate a very strong emphasis on reading in all programs for deaf children. I would extend the definition of graphics to also include fingerspelling, which has been described as writing in the air. There is already evidence to suggest that children below the age of four and even some below the age of three have already developed the skills necessary for reading or writing and for sending and receiving short

messages by means of the manual alphabet. For example St. Paul, Minnesota has established an academically-oriented oral-aural-graphic program for preschool hearing impaired children. Emphasis is on language stimulation by any means available, both auditory and visual, with training on development of both gross and fine perceptual-motor skills necessary for academic work. Even those three year old children who are not ready to produce words in written form or in fingerspelling can use a typewriter effectively. Such an approach seems to be consistent with recent research on preschool programs for the disadvantaged in the United States. Those which have followed the traditional nursery format geared toward the development of social skills have apparently failed. Those which have concentrated on the development of academic skills have achieved much greater success. In many of the family centered programs for the hearing impaired, parent adjustment has been given priority over the child's communication problem. Parent adjustment is important, but the three-legged milk stool of parent, school and child too often is an inverted traingle with the child at the bottom. I suggest we change the traingle's position placing parents and school at the base and the child at the apex where he belongs, and develop the child centered programs which are so necessary for our hearing impaired children.

In discussing education of the deaf and the changes that are taking place in our philosophies and in our programs, I think we should consider how our frame of reference has been affected by forces in society at large. As little as ten years ago it was believed for the most part that "backward" areas such as Asia, Africa, and South American could solve their problems by accepting versions of the American principles of democracy and the American way of life. At the national level it was believed that the problems of race would disappear when the Negro could be "raised" to the standards of the dominant white middle class. In our own microcosm, the field of education of the deaf, the reasoning followed similar lines; the goal was full integration of the deaf in the hearing society. Slogans such as "happiness in a hearing world" proliferated.

It must be admitted that a certain arrogance lay in such reasoning. The setting of the white standard for the Negro or the hearing standard for the deaf is presumptuous; it implies the white man has achieved self realization and the black man has not; that the hearing man has and the deaf man has not. In today's world neither black nor white, hearing nor deaf, American, Asiatic, nor African has achieved a satisfactory measure of self fulfillment. Attempts to shape individuals or groups into preconceived molds produce only deformed, misshapen results. Groups and individuals within groups, must be allowed to explore, develop, and expand their own nature.

The signs are clear that this is what is happening all over. It is evidenced by the growing self awareness of developing nations throughout the world. Black Americans are finding a source of pride in their own cultural heritage. Perhaps for the deaf the greatest source of inspiration has been the tremendous success of the National Theatre of the Deaf. It has shown, to the surprise of many people, that this medium of communication is capable of expressing meanings, emotions, and nuances with precision. It is unlikely that any hearing individual, once exposed to the versatility and ingenuity displayed by the deaf actors, can ever again easily use the term deaf and dumb. The tendency in the past has been to look at the language of signs as something bizarre and strange. Its usage, even among some educators of the deaf, has been viewed as somehow wrong, even sinful, and not as a legitimate mode of expression.

The question is, how does such a change, or the beginnings of such a change, fit into the framework of the larger culture? Is the inevitable outcome the establishment of separate subcultures with the deaf excluded, even more than today, from hearing society? No, no more than separate enclaves should be established in this country on the basis of race, religion, or nationality. The result is not fractionalization or fragmentation, but pluralism. Fragmentation involves the severing of com-

munication between groups with different aims. Pluralism involves a sense of sharing and unity.

Implicit in this is the concept that in our society there are numbers of divergent groups with each group possessing unique characteristics and potentials for contributing to general good. Any individual, naturally, represents many groups, and should be allowed to develop and explore his own nature in his own way. Perhaps, in reality, instead of rejecting some of our old ideas we may be returning to those very ideals which are the cornerstone of our society and from which we have momentarily strayed.

Finally, to sum up what, in my belief, is the present condition of the field of education of the deaf, I would like to refer to a South Carolina mountain proverb quoted by the linguist, Mario Pei. It seems quite appropriate for us and goes something like this:

We ain't what we want to be,
and we ain't what we're goin to be,
but we ain't what we wuz.

Mental Health, Deafness, and Communication

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The observations to be presented here on the relationship of communication to mental health in deaf persons are based on three years of intensive research just completed at the famed Psychosomatic and Psychiatric Institute of Michael Reese Hospital. This research was under the direction of Dr. Roy R. Grinker, Sr., one of the top ten living psychiatrists in the world today, and myself. The staff consisted of other psychiatrists, psychologists, and professional persons.

Based on these three years of in depth study of deaf mentally ill patients, their families, deaf students, and rehabilitation clients, some rather striking findings resulted. Those which relate directly to communication are as follows.

Isolation

The stark isolation from other human beings noted in the deaf patients seen at the Psychiatric Institute and from the Chicago Schools was far greater than that seen in any other group of mentally ill persons ever observed by the Research Staff. Many of these deaf persons were not only unable to exchange rudimentary information with their families, but they had no other close human contacts, deaf or hearing. Most had been reared with the goal of communicating orally or not at all and as a rule they had failed to develop the oral skills needed to make adequate communication possible. Thus, they were faced with excessive frustration in their efforts at human interaction.

The healthier of these patients and school children slowly responded to therapy in conjunction with instructions in manual communication. However, a sizable number with an almost neurotic repetition compulsion persisted in isolating themselves. After years without real human contact or embittered by early traumatic rejections, these patients were terrified by closeness to others. They could not form healthy human relationships. When this lack of basic trust is present, therapy is difficult if not impossible and these persons are doomed to the empty pattern of a life in isolation from other human beings.

Denial

The extent to which deafness and its implications were denied by the families of the deaf patients was eye-opening even to sophisticated psychiatrists long experienced with hospital patients and their families. Part of this denial is an outgrowth of invisibleness of deafness and part results from the extent to which professionals in education, audiology, medicine, and related fields encourage the denial with "therapy" which actually is an effort to deny. The "therapy" referred to is a restriction to just oral efforts at communication.

It will suffice here to indicate that this kind of denial of irreversible deafness is a pathological yet common method of coping with the trauma. It prevents the development of healthy constructive reactions to deafness and leaves the deaf person and his family directing energies toward activities that are inappropriate to the reality of the situation. Frustration, failure, and an underlying anger are commonly the result. These, in turn, contribute to unhappiness within the family and the destruction of the deaf members rightful role.

Underachievement

One of the most disturbing findings of the Project was the pervasive underachievement of the clinic and school population. This was particularly true of the 17 percent of the clinic outpatients who were diagnosed "School Situational Reaction" for want of a bettter term. These were "normal" deaf youth who with their parents voluntarily came to the outpatient clinic for educational consultation. Many were teenagers with high IQ's whose educational level was second or third grade. In fact, the mean

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educational achievement of the clinic population was fourth grade. From this educational deprivation, plus the lack of general knowledge imposed by the communication limitations of only oral education, resulted a gross general naivete about the world in which they lived and about interactions with other people.

The failure of the oral only educational approach undermined efforts at psychotherapy and habilitation. The grossly weak educational foundation it creates mitigates against a hopeful overall prognosis for therapy and rehabilitation. Often a year or more had to be spent in teaching manual communication before psychotherapy could be started.

The demands of today's technological society preclude vocational success for one saddled by the combined handicaps of deafness and undereducation. Even for the ambitious deaf student, self education is impossible if reading levels are third and fourth grade. Educational under-achievement of the degree observed in the greater Chicago metropolitan and suburban area was associated with gross underemployment.

Arrested Versus Regressed Personalities

One fundamental of psychotherapy is that it is far easier to successfully treat a patient who has regressed psychologically from a higher level of personality development than to help a person who, due to arrest or deprivation, has never advanced beyond a relatively primitive state. Due not to a lack of ability but to a lack of adequate parent-child communication, deficient interaction with peers and undereducation, many of the deaf patients required a therapy geared not just to returning them to previous levels of functioning, but bringing them beyond this to higher levels of integration.

Inadequate Personalities

Over seven percent of the patients bore the diagnosis "inadequate personality" and many others could have been so classified had not other pathology been more dominant. A number of these patients were deaf Negro youths who grew up in the South having never attended school. When their families moved to Chicago, these young people faced adjustments far different than those that had been successful for them in the rural South. With no verbal language, no means of communication, no education, and no experience with inner city life, they were quickly exploited by street gangs and others. Eventually in frustration they would attack their tormentors with a lethal weapon and be referred to the clinic from jails and prisons.

One somewhat different case was a boy born and raised in Chicago. As a five-year old, he had been taken to school for a few months but did not like it. Consequently, his mother kept him home for the next 10 years. During this period he and his mother had few other outside contacts. They remained in the home most of the time except for periodic visits to the park and the grocery store. Finally, three months before this boy became 16, the Chicago school authorities discovered him to be truant. After nearly 16 years of almost total protection, he was then dumped into the Audy Home, a facility where delinquent and/or homeless children are kept. After three months there, he became 16 and a compulsory school attendance was no longer required. He was returned to his mother. Still totally illiterate and nonverbal but with three months of experience in a jungle of violence, crime, and sexual abuse, he became incorrigable. He would physically terrorize his mother coercing money and food from her. He would then be out all night often to return in police custody or bloody from fighting. Now 17 he is bounced between state hospitals, jail, and home.

There was another type of inadequate personality seen fairly frequently in the clinic. Sometimes these persons were classified as passive dependent or as a situational reaction. These were overprotected deaf persons who had always lived at home with their parents. In this dependent relationship they were able to function. As the parents grew feeble or died, the deaf patients were left unable to function independently and unwanted by relatives. Hospitalization in state facilities or in some cases incarceration were the most common outcomes in these cases regardless of whether or not the parental loss had

precipitated a psychosis.

Two patients classified as inadequate personalities deserve mention because of their strange histories and because their general circumstance has been seen observed in other settings by Project Staff. Both are cases who were hospitalized as retarded when young children but who as adults have been found not to be retarded. The patterns of behavior learned from years as institutionalized mental deficients render them unable to adequately cope with urban living without rehabilitation. For example both are openly promiscious and bisexual, behavior common in their institutional environment, but cause for legal prosecution outside. As adults they were both totally nonverbal.

Sexual Deviation

A lack of sexual information growing out of a lack of communication, also noted by Rainer and Altshuler (1963), was common and perhaps a more pervasive problem than specific sexual deviations. Even among the more successful deaf adults, there was an appalling lack of sexual information. Even relatively good "oral" communication between family and child is rarely adequate to the task of providing needed sexual information.

Summary

Based on this brief overview of some of the results of the three years of research on deafness and mental illness it is clear that many of the mental health problems that strike deaf children and adults and which bring a chronic grief to their families are due to professional efforts which reduce communication. They reduce communication by restricting parents, children, and teachers to just oralism which does not permit a total communication. Oralism isolates deaf children from their families and the world in which they live. One major preventive step for mental illness would be a use of combined manual and oral communication from infancy.

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Project LIFE
Language Improvement to Facilitate Education

Mrs. Hilda Williams*

Project LIFE is a program being developed under the sponsorship of Media Services and Captioned Films, Bureau of Education for the Handicapped, U.S. Office of Education. Programmed instruction is the teaching medium around which the language materials are being built. However, in view of reported deficiencies found in the perceptual skills of deaf children, it was decided to precede language instruction with programmed lessons in percepto-cognitive skills. These deal with visual properties, position in space, omissions—additions, and spacial relationships. More specifically from the child's point of view, they involve color, position, shape, relative size, and the like, working into pictures, letters, word configurations, and words.

To further enhance the child's progress and to respond to requests by the profession, the Project is developing, during 1969-70, a series of programmed lessons in thinking activities. Some of the areas for which programs are being sought include those on detecting absurdities and differences, arranging items in logical sequence, recognizing appropriateness or suitability, recognizing relationships, using old information to solve new situations, conceptualizing, and storing information and recalling it. Since the Project's main task is that of developing programmed language lessons, the majority of this paper will concern itself with that aspect of the total scope of Project LIFE.

Language Selection Process

The criteria for the selection of concepts to be programmed is based upon the interest, needs, and experiences of the children in relation to their developmental stage. The vocabulary and language principles included in the units are organized into a hierarchial manner, progressing from the very simple to the increasingly complex. The units being developed, fall into the general categories of self, clothing, food, nature, home, school, community, and holidays. A unit is typically composed of from five to six sections, each of which consists of a single filmstrip of about 50 frames.

Programmed instruction offers the deaf child a new approach to the learning of language. It gives him perceptive language at the age of inquiry. It provides an individual approach to learning, and a frame of reference for visual monitoring. Consequently, it has been found that the child who sees numerous repetitions of a certain language principle, is able to a large extent, to monitor his own language visually. Thereby, he is able to detect inconsistencies in receptive language and produce correct expressive language. The program also has a built-in self learning situation for the child. He is able to progress independently without the aid of the teacher. In other words, the program could be called child centered, rather than teacher dominated. Since the program progresses in very small steps of increasing difficulty, there is a guarantee of success for the child and, naturally, this is accompanied by the learning experience being pleasurable. Due to his successful performance, the child creates a better self concept which is extremely important to the psychological development of the individual.

PI Considerations

The task of the programmer is to present the "how" rather than the "what;" that is, the program develops understanding of language, rather than the mere presentation of patterns. The language is presented in thought units such as complete phrases or sentences. Seldom is a child required to fill in an eliptical sentence with a single word. The learner is expected to associate pictures with the language and vice versa.

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The programmer is also required to design frames that will teach the child what is **not** as well as what is. This is done by contrasting the correct with the incorrect. Frames are designed to develop the child's ability to select materials which are related which may be factually and linguistically correct, but not appropriate. These frames require the child to do some very critical thinking as well as careful reading to obtain the correct response.

In order to accomplish these tasks, the programmer must follow certain steps in the preparation of a program. First, he writes a definitive purpose for his program; next, he states clearly the behaviorial objectives which the program is designed to accomplish. The behaviorial objectives are statements which define precisely what the child is able to do at the end of any given learning experience. Following this, the programmer writes the test frames which measure these behaviorial objectives. Finally, the programmed frames are constructed that are intended to develop the necessary learning skills to satisfy each item in the test. The programmer plans the pictures to be drawn that illustrate the language concepts. When the program is complete, it is assembled on 35mm slides and is tested on the predetermined target population. In the case of Project LIFE, the program materials are validated on preschool and primary children in day and residential schools for the deaf. After the revisions necessitated by the initial testing, the program is retested on a larger number of children. Finally, the program is submitted for filmstrip production. In addition, each programmer writes a fun supplement that carries a story primarily through pictures. Yet, the child is required to make a response to every frame of the program which reviews the language concepts presented in the unit.

PI Advantages

One of the main advantages of programmed instruction is that the learning events are sequentially presented and optimally spaced. Similarly, PI provides for many more repetitions than the teacher could normally give. For example, 50 to 60 frames may be designed to teach two verbs. Furthermore, these two verbs are reinforced numerous times in subsequent programs. Another feature of the Project LIFE teaching machine is that the child must respond actively to each frame and he cannot progress until he makes the correct response. It is common knowledge that in a typical classroom situation, many times children are not responding actively unless they are being called upon to recite. The program, as it is designed, prevents the reliance of the child upon the teacher for confirmation. The correct response elicits a green confirmation light which indicates to the child that he can now move on to the next frame.

PI is particularly good for the slow child since he can pace himself at a markedly slower rate through the program. Also, he need not lose face because he is making slower progress than others in his group. When children are absent from school, they can acquire missed material through means of the programmed filmstrip. Since the materials are organized and uniform, the teacher by comparing individual children's performance, has a basis for measuring progress. Another of the multiplicity of advantages of PI is that it frees the teacher to spend more time on concept building and reinforcement of language principles.

Supplementary Materials

Brief mention will be made of some of the supplementary materials being developed by Project LIFE. These include specially illustrated children's story-booklets, a concept-oriented picture dictionary, and a series of workbooks. A manual of multiple meaning words has also been compiled and published by the Project and it will be distributed to schools for the deaf across the U.S. in January, 1970. The manual consists of over 200 words with the multiple meanings for each word arranged in seven levels of difficulty. Some experimentation is also being conducted with programmed movies in language concepts which require motion for complete understanding.

In summary, Project LIFE is attempting to develop Programmed instructional materials which will be interesting, meaningful, and functional to severely hearing impaired children. In addition,

supplementary materials are being developed which are intended to reinforce the language concepts presented via PI. It was realized at the outset that an awesome problem was being attacked—that of language. Consequently, the Project was viewed as a long-range endeavor. It should be mentioned that PI should never be thought of in any way as replacing the classroom teacher; rather, it is the Project's intention to develop carefully planned and validated materials which will reinforce the language being taught in the classroom. After developmental and validation testing of the Project LIFE materials, we who are associated with the Project are enthusiastic over the possibilities of programmed language for deaf children.

Psycholinguistics and Deafness
A Deaf Man's View

Mr. Frederick C. Schreiber,
Executive Secretary, National Association of the Deaf

The theme psycholinguistics and deafness brings forth an immediate reaction—not so much in relation to linguistics as to psychology.

In this respect, we are compelled to focus a little attention on what most of you probably know already—that all psychological studies of the deaf reflect the experiences of children who live with conditions of communication, educational, social and cultural deprivation. That is, psychological studies have focused on what is—not necessarily on what can be.

Research has shown that the average school leaver has a 4th grade reading level. His academic achievement comes no where near his true potential as measured by his I.Q.

In part this comes from the fact that there is little or no effective communication in the critical years of a child's development—the ages from 3-8, and hence language development is stifled. Moreover, without language or an efficient means of communication, the deaf child cannot get the systematic mental exercise he needs for general learning purposes.

With reference to language learning, we are acutely aware of the research performed by Stevenson, Meadow, Birch and Stuckless, and Stephen Quigley, all of whom reported that easy manual communication and/or fingerspelling with deaf children resulted in significant gains in language ability as well as in other areas, such as emotional maturity, social adjustment, and speech reading.

I do not believe that there have ever been any in-depth psychological studies of this select group. If the teaching profession is to gain a meaningful understanding of the true potential of deaf children, such a psychological study must be made.

These findings, however, are the result of research and confirm what the deaf have known all along — that the sooner the child gains meaningful communication the better his language will be.

As is generally known, acquisition of language is largely auditory. With deaf children we use visual substitutes for auditory input. Still, there is no way for visual input to even approximate auditory input. You can hear people talking in another room, for example, even when you cannot see them.

Since this is the case, we think that efforts should be made to maximize the amount of language to which a child is

exposed by making communication as easy as possible.

Even this, however, does not seem to be enough. Since visual input will never equal auditory input, we need supporting services, particularly with respect to the materials used in our schools, to bridge the gap.

Generally speaking, textbooks, used in schools for the deaf, are designed for children who can hear.

It may be true that when children first start to read, the deaf child is on par with his hearing peer insofar as reading is concerned. But the hearing child has a vocabulary several hundred times as large as that of the deaf one and this difference in vocabulary soon is evident in the books that are being used.

With due consideration to the fact that the goal of deaf education is, or should be, a graduate with an achievement level equal to that of his hearing peers, we believe this could best be accomplished by designing special texts for the primary and intermediate grades that would, in the beginning, dispense with words that are ambiguous insofar as the deaf child is concerned and gradually add these words until, at the seventh or eighth grade level, the books used by deaf pupils would be the same as those provided for the hearing.

We are aware of the economic considerations involved in such a proposal, but believe that the high cost of publishing such specialized material could and should be offset by a direct Congressional subsidy—perhaps by establishing an American Printing House for the Deaf, similar to the American Printing House for the Blind, which received Federal funds.

Some schools for the deaf are now experimenting or using different forms of what we call "total communication"; an all out effort, as is being done here in Maryland, or fingerspelling and speech in Florida, Louisiana, and other places. This is a great step forward, but it is not enough.

We need some research into the feasibility of converting the language of signs into manual English. The overriding considerations here are that while it is possible to use our present sign language in a form that is grammatically correct, our ultimate goal should be a system that will do for the eye what sound does for the ear.

Dr. Bernard Tervoort, an internationally known researcher on language development in deaf children, has noted that ours is basically an auditory world and our language is based on sound. Dr. Tervoort contends that a visual language would be much different than an auditory one. This could very well be true, but considering the fact that language acquisition is most critical in the 0-6 age range and that few parents, if any, are in this age bracket, it would seem highly desirable that research be initiated toward the conversion of the language of signs into manual English, a mode that would be compatible for both parents and child.

If we are going to facilitate the acquisition of language through an intensified effort at early communication, we must start in the home and thus any system we devise must take into consideration the limitations of not just the child but the parents as well.

We know that it is possible to teach a child any language. Children of French speaking parents learn French, Greeks learn Greek, etc. This is true of deaf children, also.

What we really need is a visible means of communicating in English since English is what the parents use. This may take quite some time but it will never take place at all unless we start now.

Experiences of Parents of a Deaf Child

Mrs. Lee Katz,
Administrative Assistant, Council of Organizations Serving the Deaf and Mother of a Deaf Child

I know of many parents who would relish the opportunity I have today, of sharing a place on this panel and addressing a group of people in the field of deafness. I do not feel I represent the point of view of all mothers and fathers of deaf children, but I assure you I am not unique. While my frame of reference is essentially from personal experience, it is reinforced by similar experiences of many parents.

You will want to know that my daughter is now 13 and congenitally deaf, with an 85 dB loss in the speech range. She was diagnosed at 14 months, and was in hearing aids and an oral program at 18 months. Her language development during her fourth and fifth year was applauded by her teachers, and her behavior was, except in testing situations, within the accepted norm.

As I mentioned a moment ago, Lizabeth's progress was considered excellent. Our relationship with those who worked with her was excellent. But as satisfaction of teachers grew over Liz's language and behavior development in the classroom, disenchantment began at home. The handful of extra words that made her a star in her group at school, never impressed the kids on the block, and hardly gave her entree into the give and take in the family. We were encouraged and grateful with any and all improvement, but the overriding feeling was one of frustration at not being able to communicate meaningfully.

Something devastating can happen when you are reducing communication into predetermined sets of phrases or single words. Everyone knows that deaf children can have behavior problems because of this limitation, but I sometimes wonder if people fully appreciate that entire families can develop problems for the same reason. A constant diet of reshaping and watering-down meaning; learning to avoid off-hand comments, and explanations you feel helpless to make, all conspire to trigger terrible feelings of both resentment and guilt.

Compound this with the breakdown in communication between a satisfied teacher and a parent who keeps saying "there must be a better way!" I suppose it is a threat for a teacher to suffer this kind of misgivings from a parent when the child involved is considered a prize student. But consider, too, the threat to the parent, when he is led to believe that if he strays from the practice of "ball", "shoe", "airplane" and "fish", that his child will probably never be a part of the hearing world.

Hearing parents ask for assurances that their deaf child will learn to speak and lipread. That seems to be about the only thing on their mind when they first discover they have a deaf child. But it should not be the only thing on the mind of the educator, psychologist and audiologist. Someone of them, or all of them as a team, have a responsibility to lead the parent into understanding the other things that must be dealt with, that are of equal importance. Everyone is for speech and lipreading! Why can't everyone also be for education, communication and the development of a whole child? As a matter of fact, parents that I have been involved with in recent years seem to be, as I have twice now seen them decribed in print, a "new breed." They are demanding total communication. They are demanding legitimate education.

In our own experience, the addition of good English signs and fingerspelling along with our speech, re-established a whole family balance. If there was no other reason in the world for going to the effort of learning this skill, that would have been enough. However, Lizabeth's acquisition of language accelerated; reading comprehension accelerated; speech improved greatly, and lipreading was enhanced. Education was facilitated immensely.

In my own reading and questioning of authorities, I have never become aware of research to establish that supplement-

ing speech and lipreading, with signs and fingerspelling, will impede speech and lipreading skills. There is however recent research to indicate the opposite. What I am trying to express even appears in the Random House Unabridged Dictionary: Language is defined as "communication of meaning in any way", and communication is "the imparting or interchange of thoughts, opinions, and information by speech, writing or signs." So it is very difficult for a parent to understand why we can be sentenced to such frustrations and limitations for our child and ourselves.

I know you will agree that if one is to understand and make intelligent decisions on any subject, he must be exposed to it on every level. Because of this basic tenet it is incomprehensible to me that parents are not urged, indeed pressed into repeated rubbing-of-elbows with deaf adults. The more numerous the associations, in a gamut of informational and social situations, the more practical and likely the understanding . . . not to mention the meaningfulness to the deaf child, growing up in a family that has deaf friends. If one is to project to the future so as to establish reasonable expectations, it is inconceivable that parents remain so segregated from the deaf adult, or only cross paths with a few token ones.

It is even more incredible that there exist professionals who do not have continual exposure to deaf adults; do not claim one deaf friend after years in the field; do not know how to communicate in the language of signs and/or fingerspelling; and indeed, if my sensibilities do not deceive me, are actually discomforted in the company of deaf children who have become adults.

These are simple observations arising basically from realities of experience rather than from recommended readings. I realize that the communicative comfort that has happened to us could possibly be construed as unique to our own family. But I cannot honestly accept this contention. We have worked hard to resolve our problems and I believe there should be ways of sharing what we have learned.